

Basic LS-APGD Source Operation

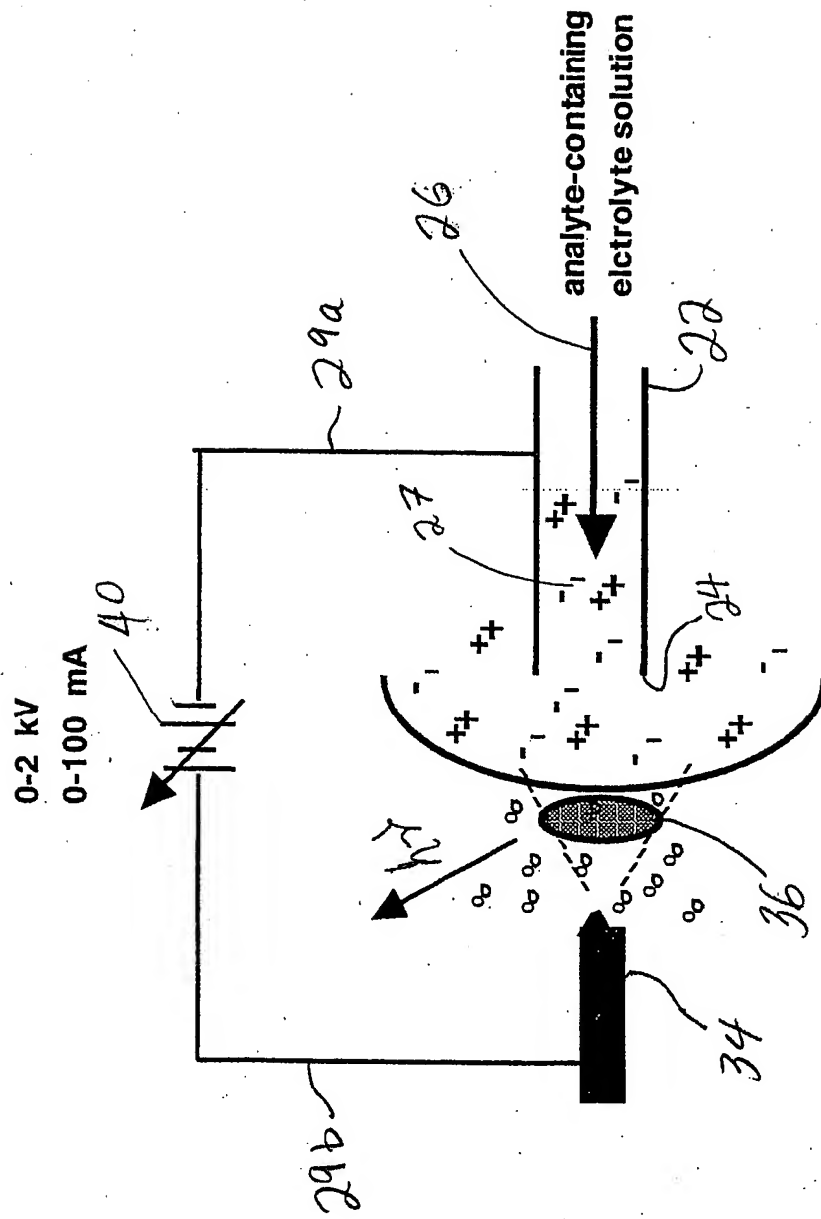


Fig. 1b

Proposed Implementation of LS-APGD with Microfluidic Devices

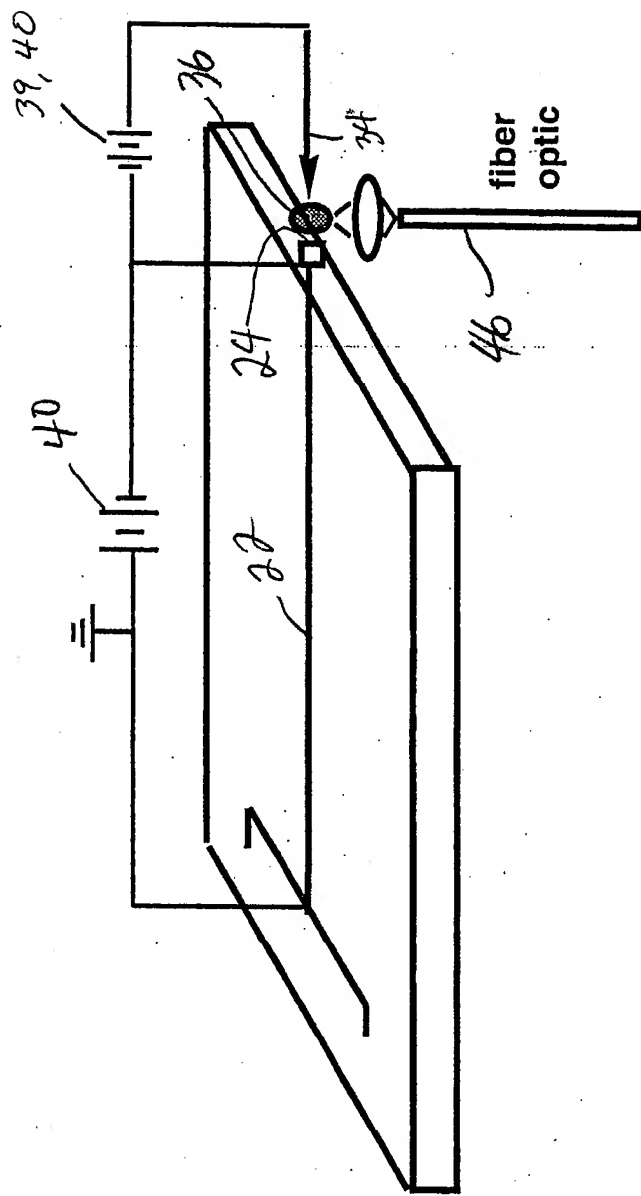


Fig. 1c

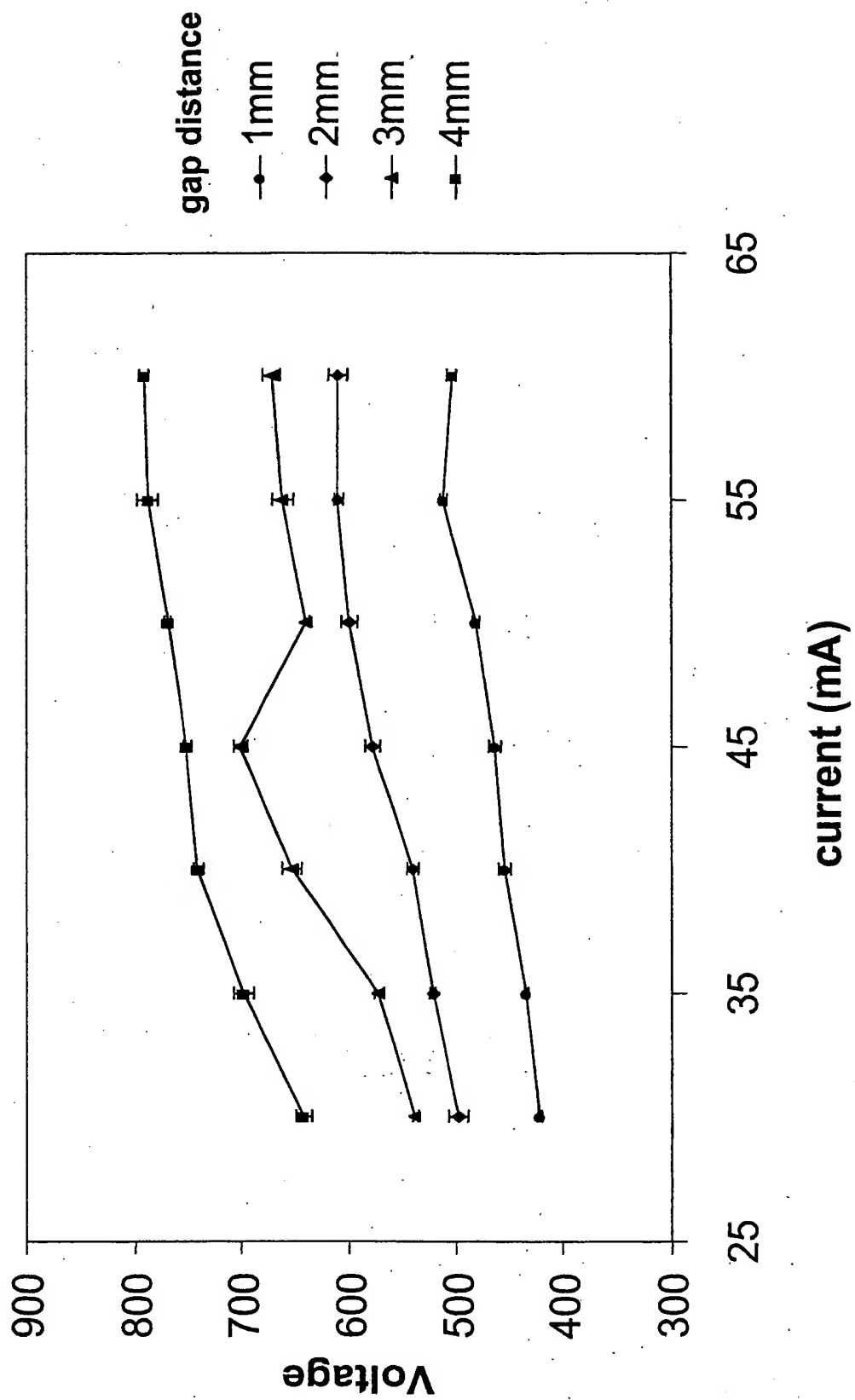


Fig. 2a

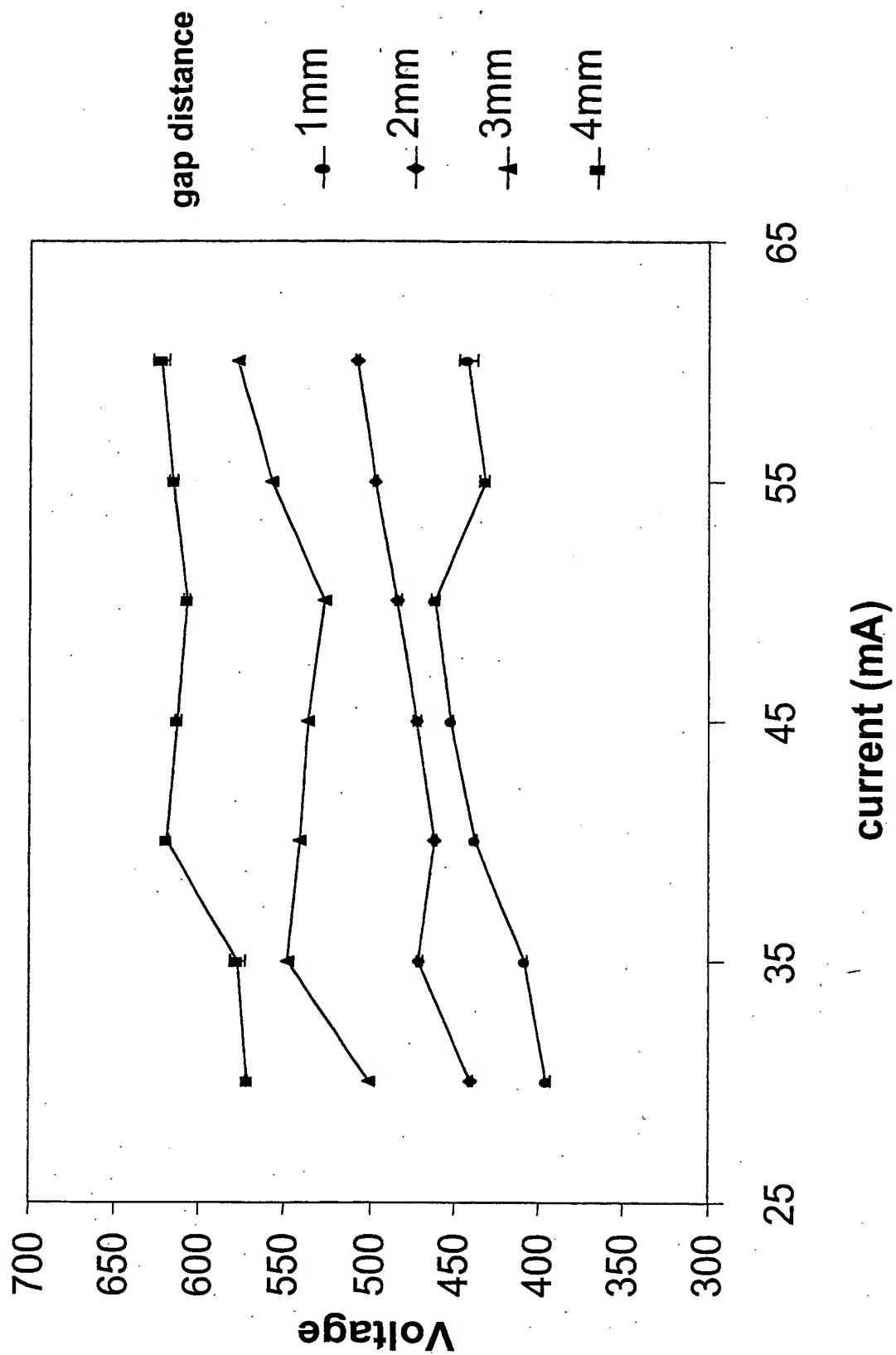


Fig. 2b

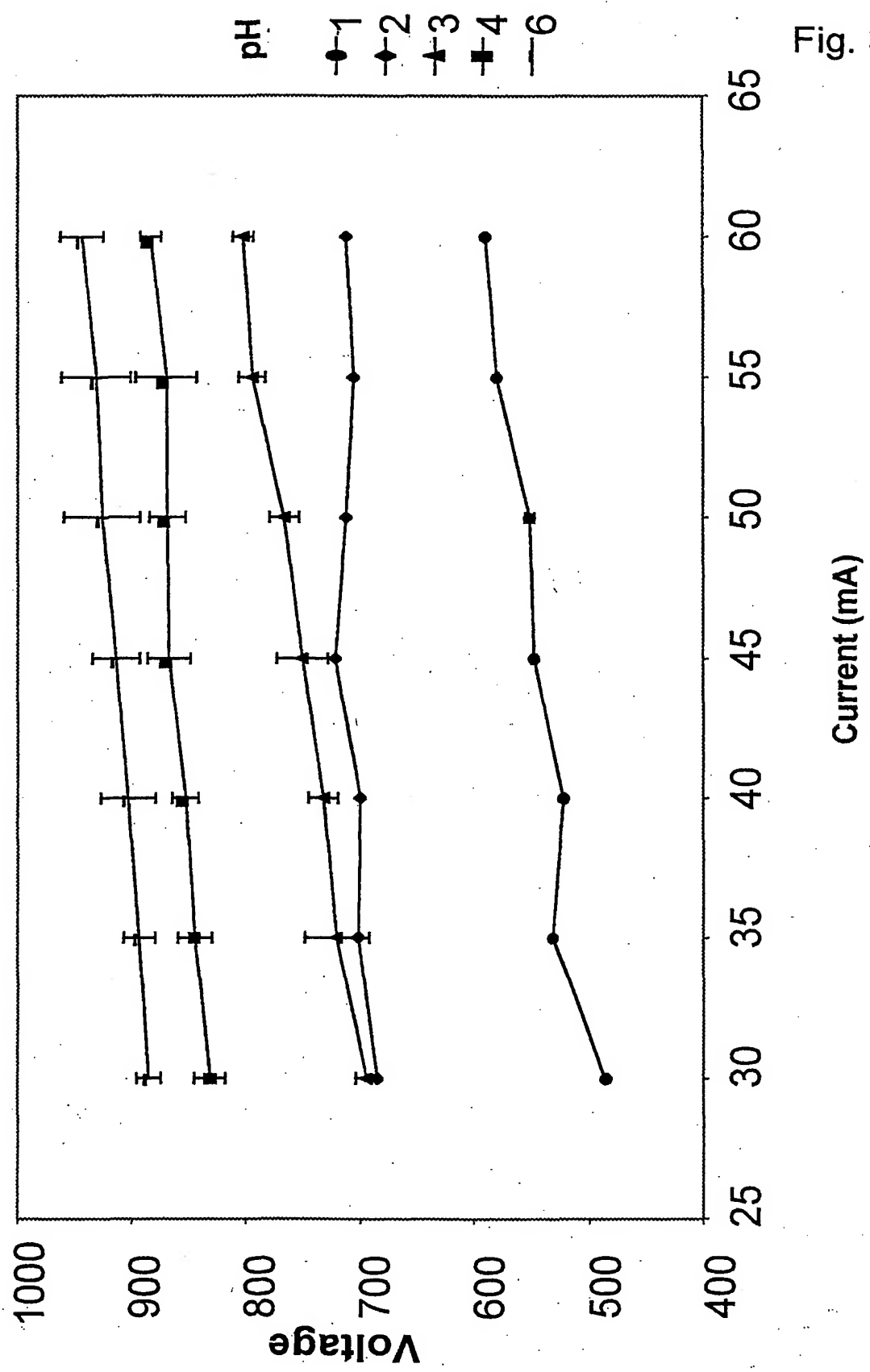


Fig. 3a

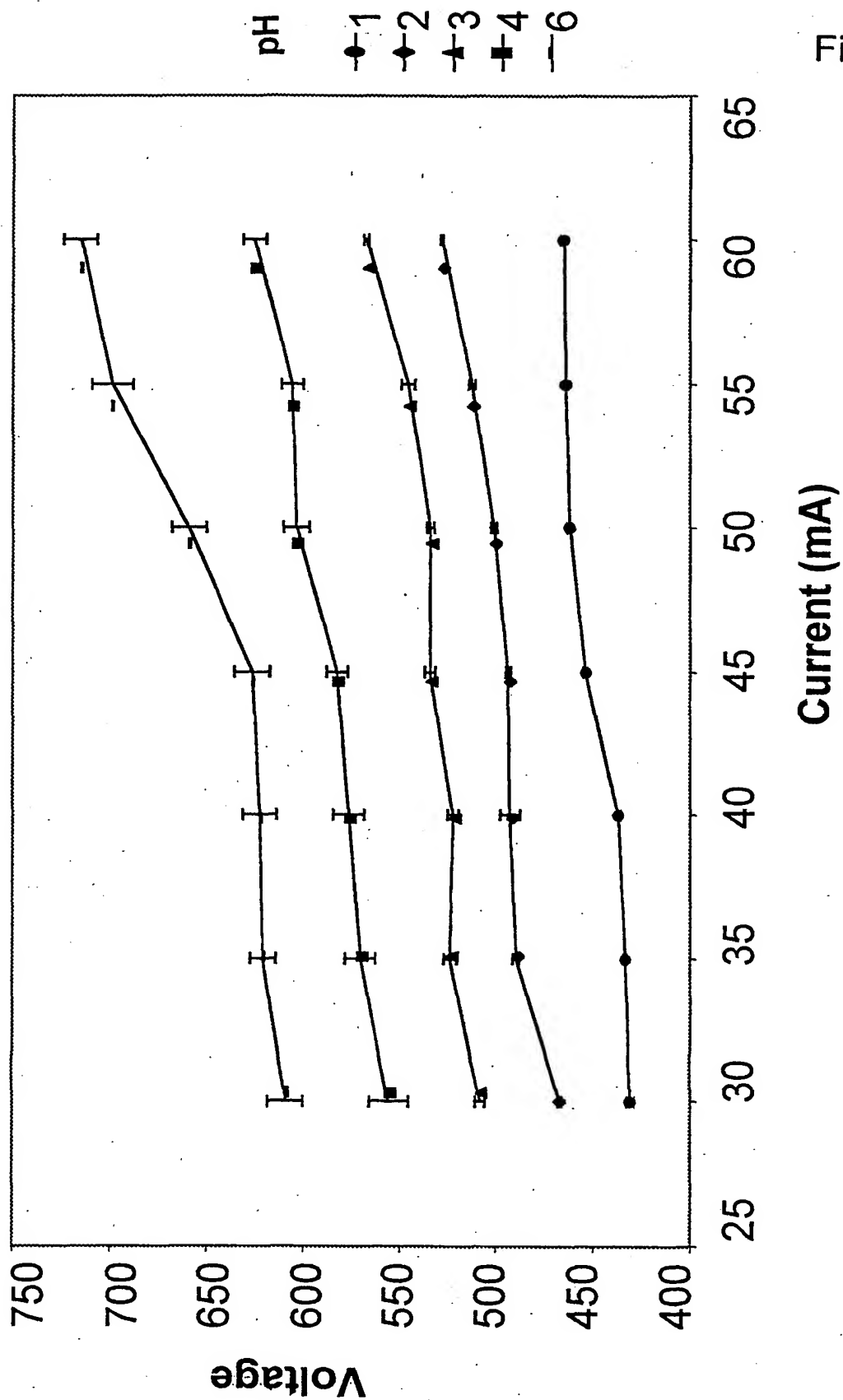


Fig. 3b

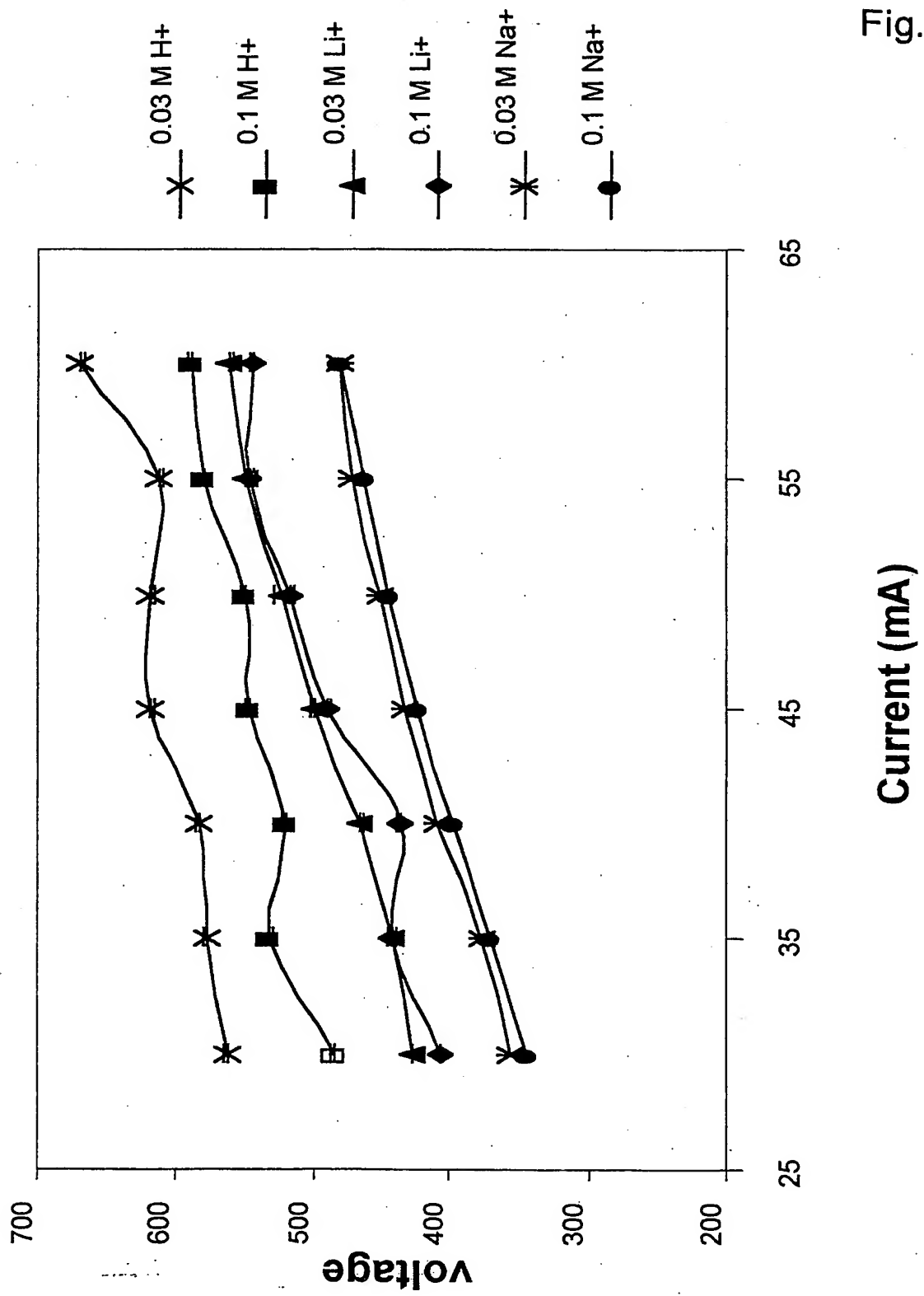


Fig. 4a

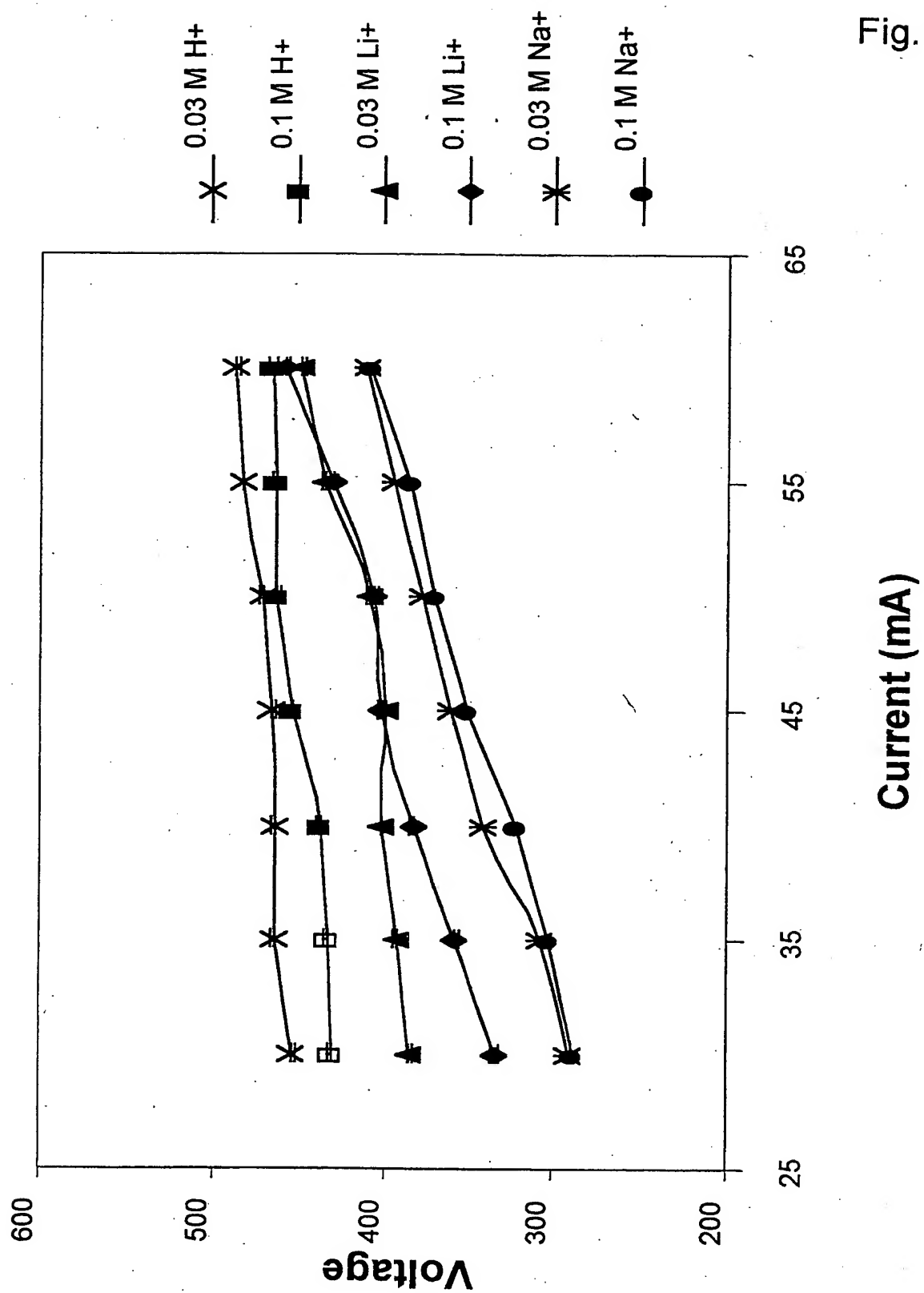


Fig. 4b

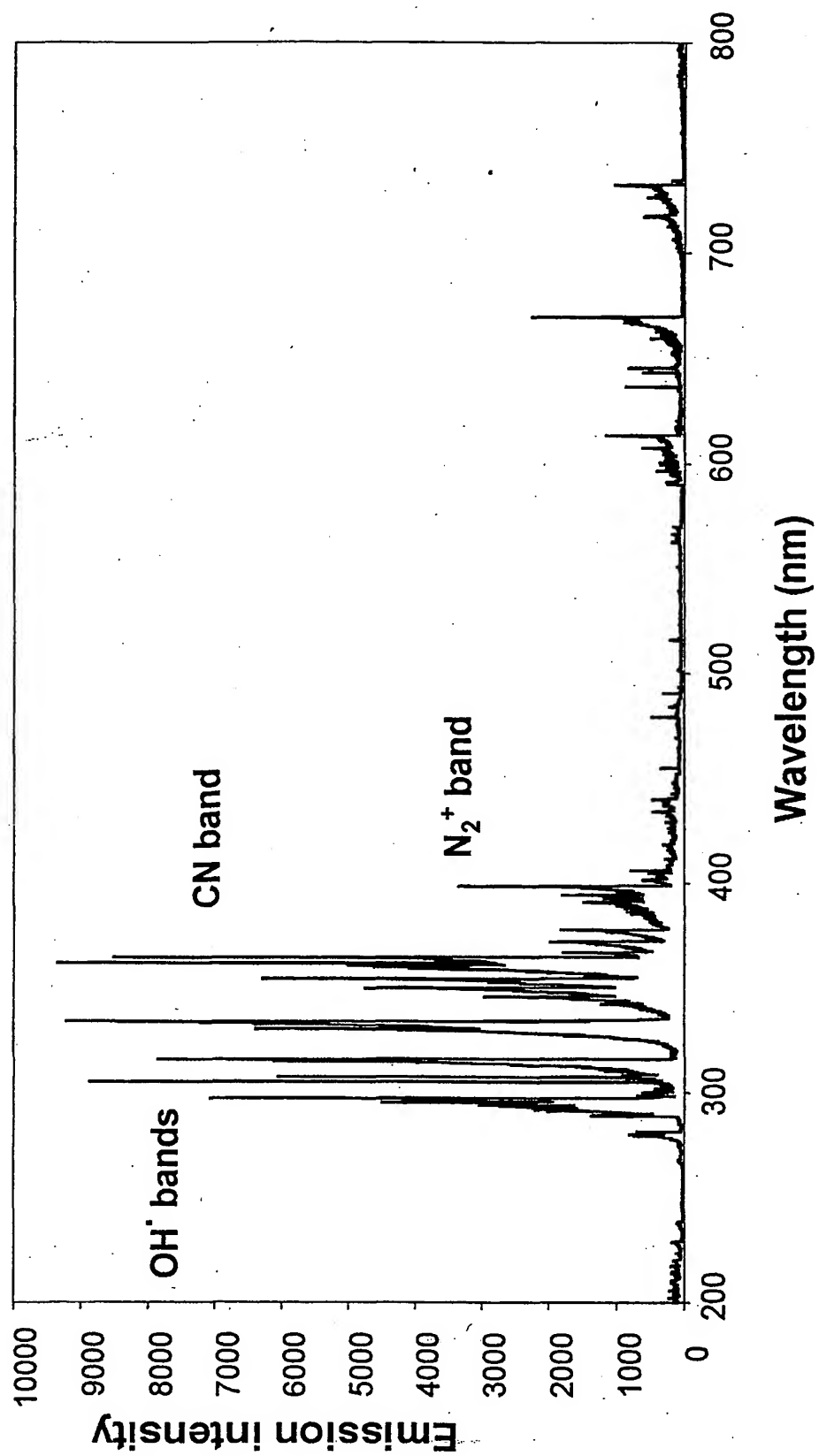


Fig. 5

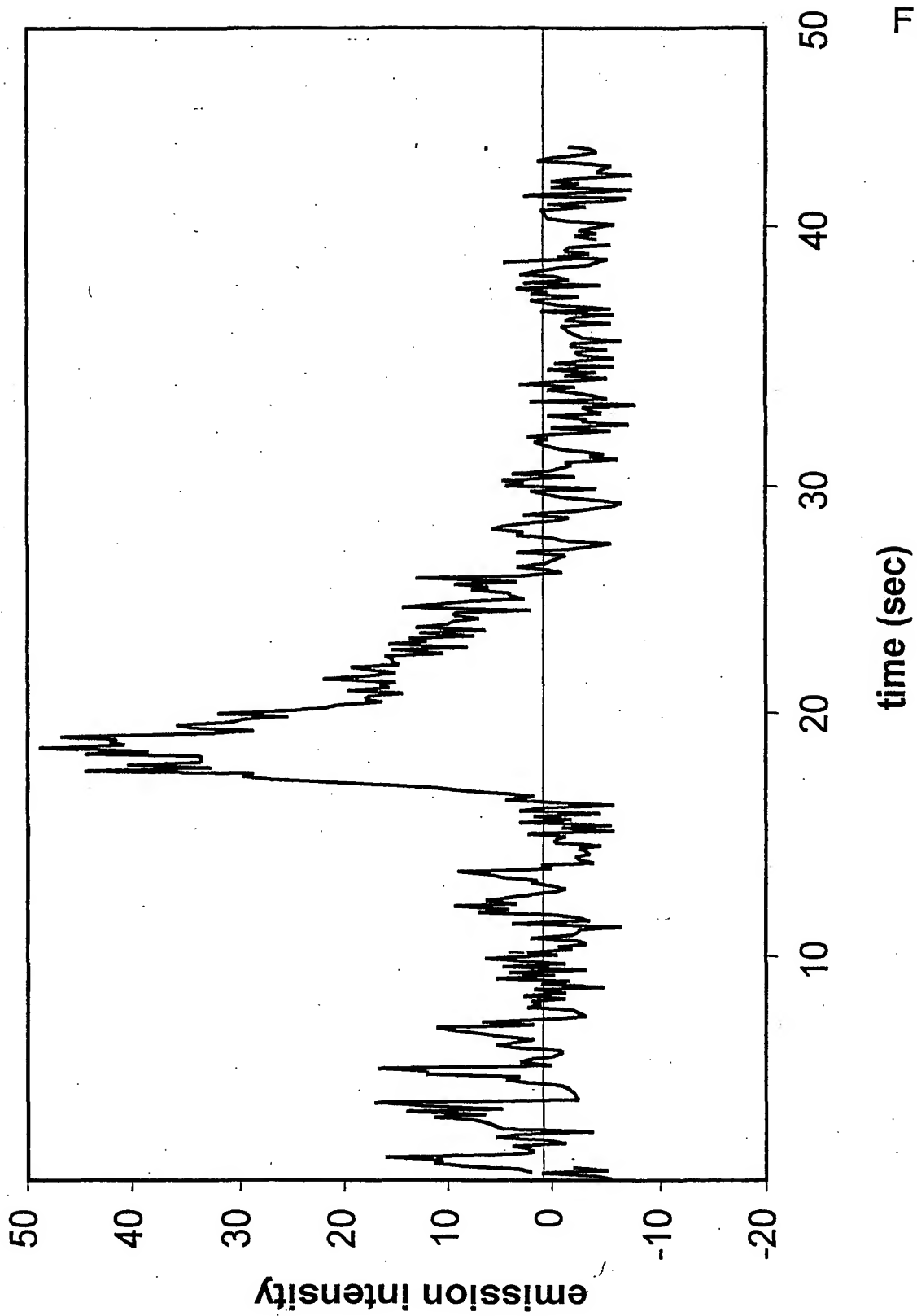


Fig. 6

Fig. 7

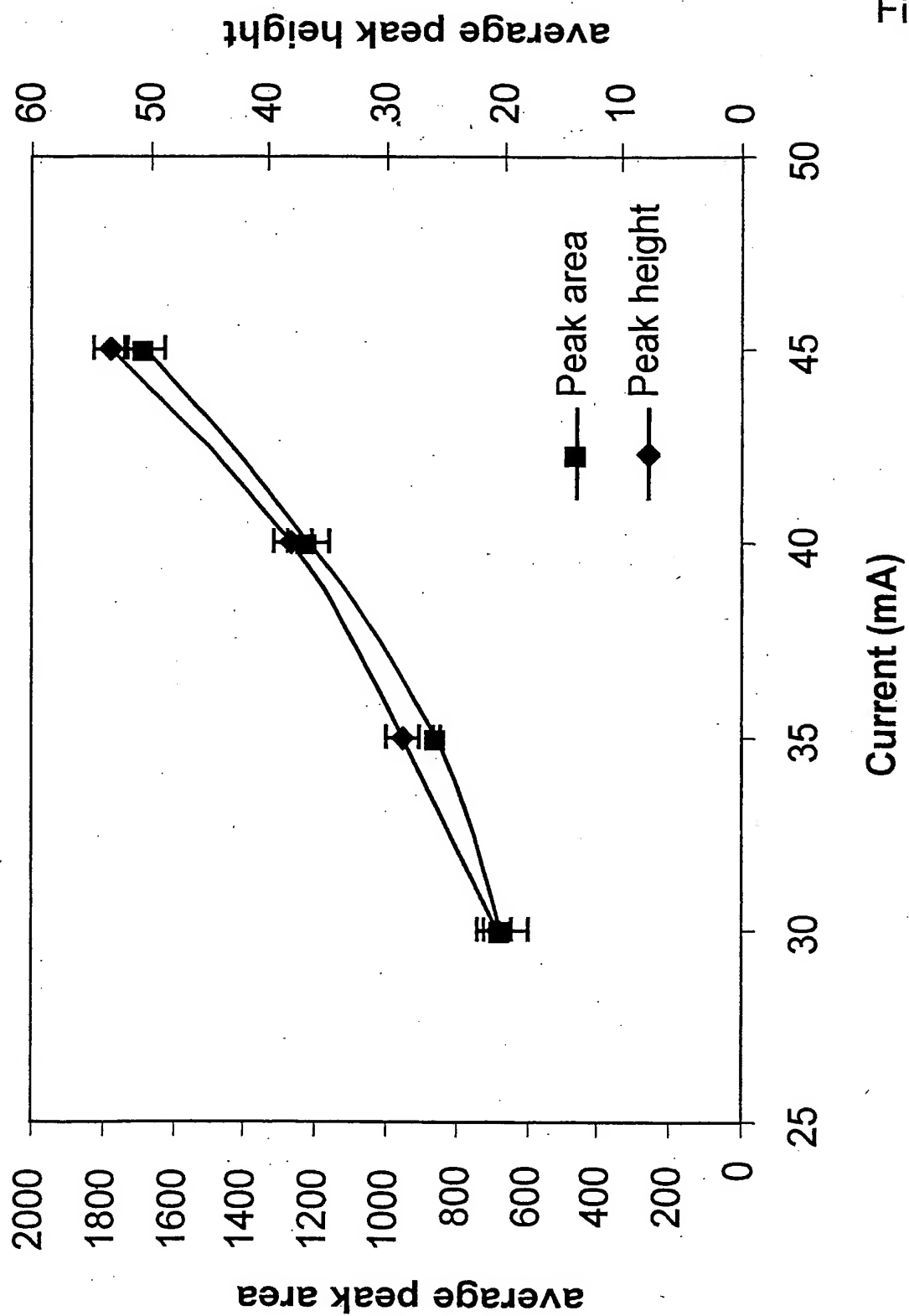
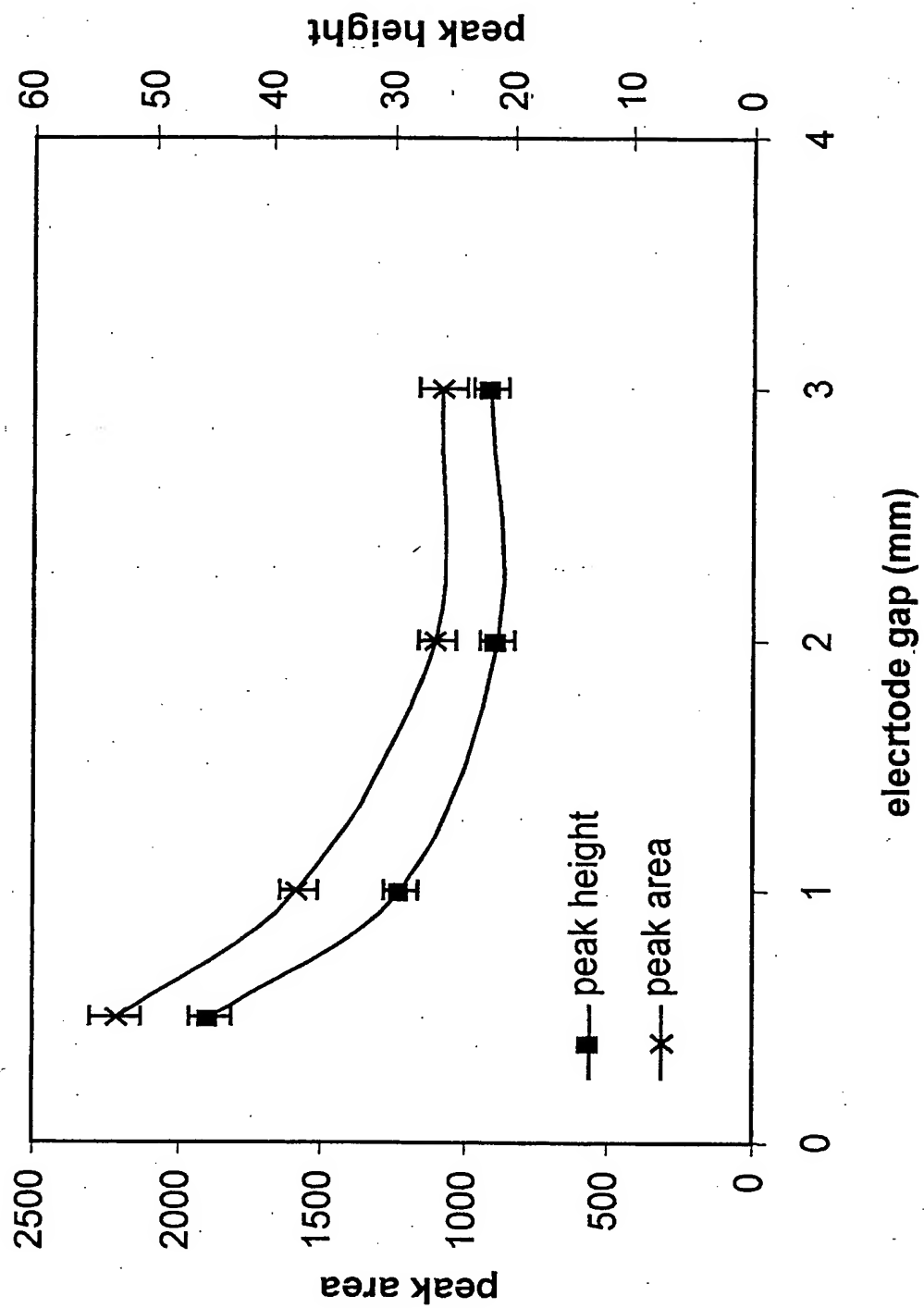


Fig. 8



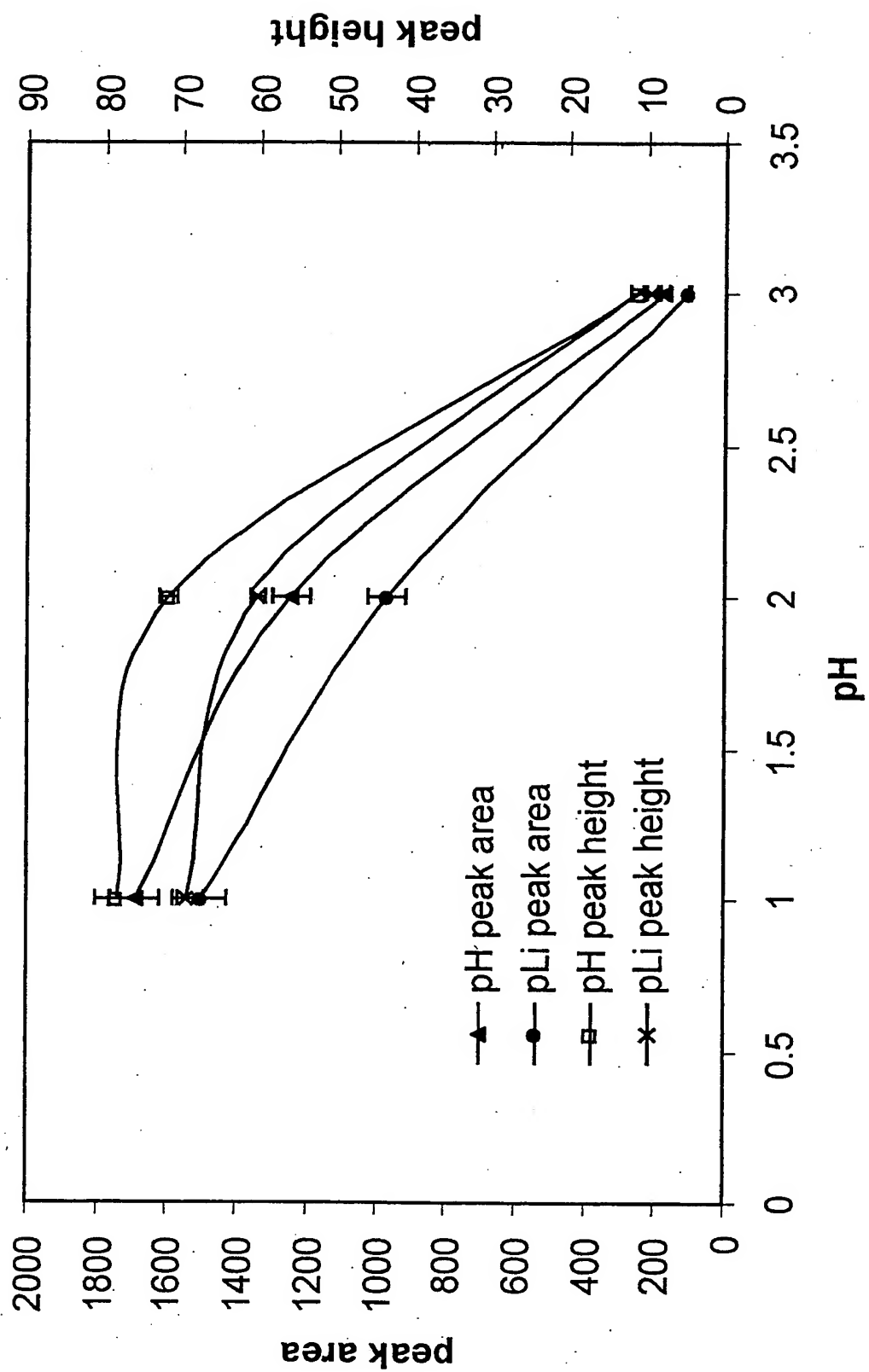


Fig. 9

Analytical response functions and limits of detection for the LS-APGD device. Solution flow rate = 1 mL/min, electrolyte pH = 1, inter-electrode gap = 1 mm, injection volume = 5 μ L.

Element	wavelength (nm)	peak height eqn. R^2	peak area eqn. R^2	LOD ppm (ng)
Na	589.0	$y=0.421x + 42.8$ 0.9859	$y=15.81x + 978.6$ 0.9784	12 (60)
Fe	248.3	$y=1.06x - 102.1$ 0.9365	$y=45.80x - 6649$ 0.909	12 (60)
Pb	405.8	$y=1.18x - 10.45$ 0.977	$y=16.16x - 419.7$ 0.9298	14 (70)

FIG. 10

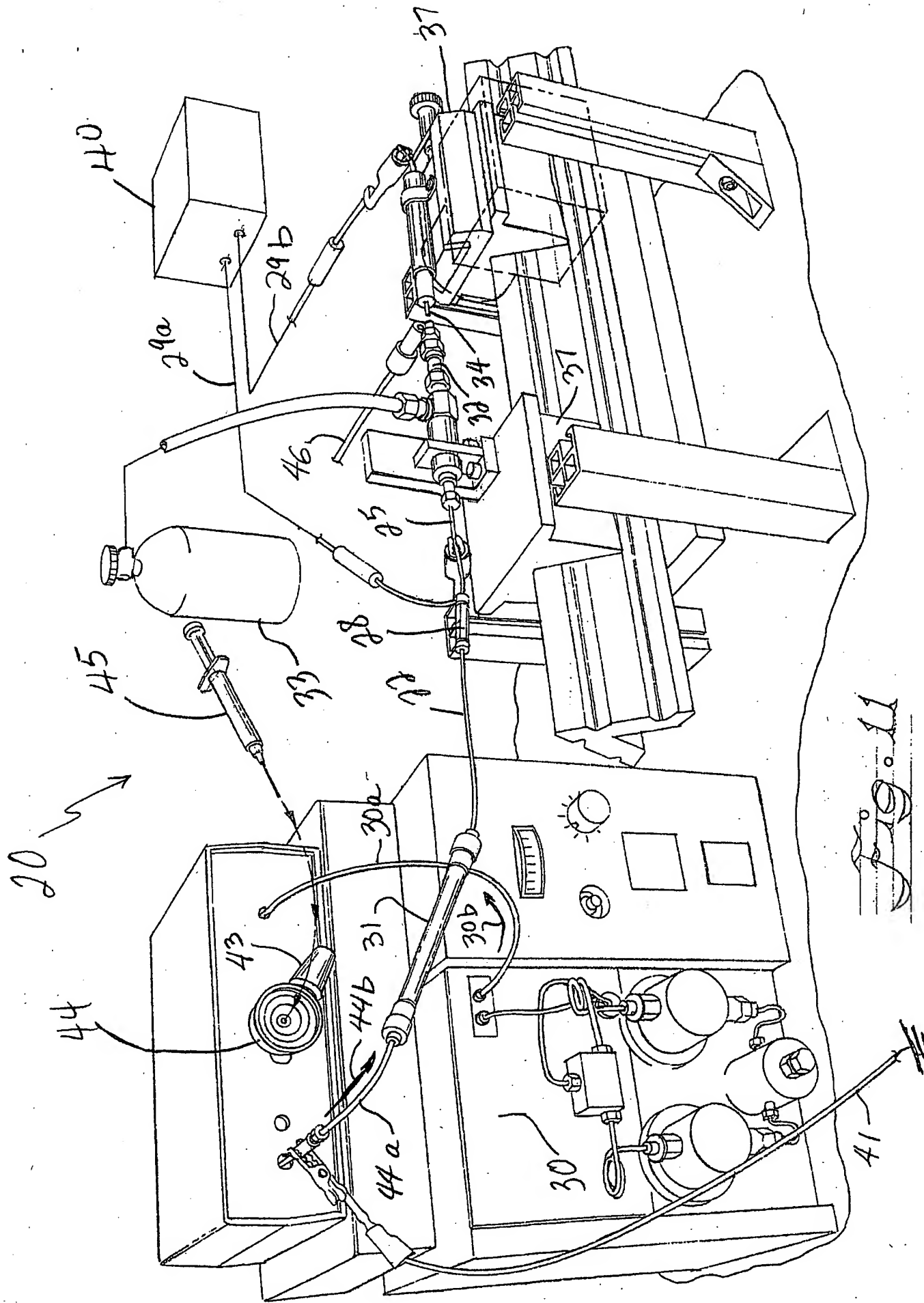


Fig. 11

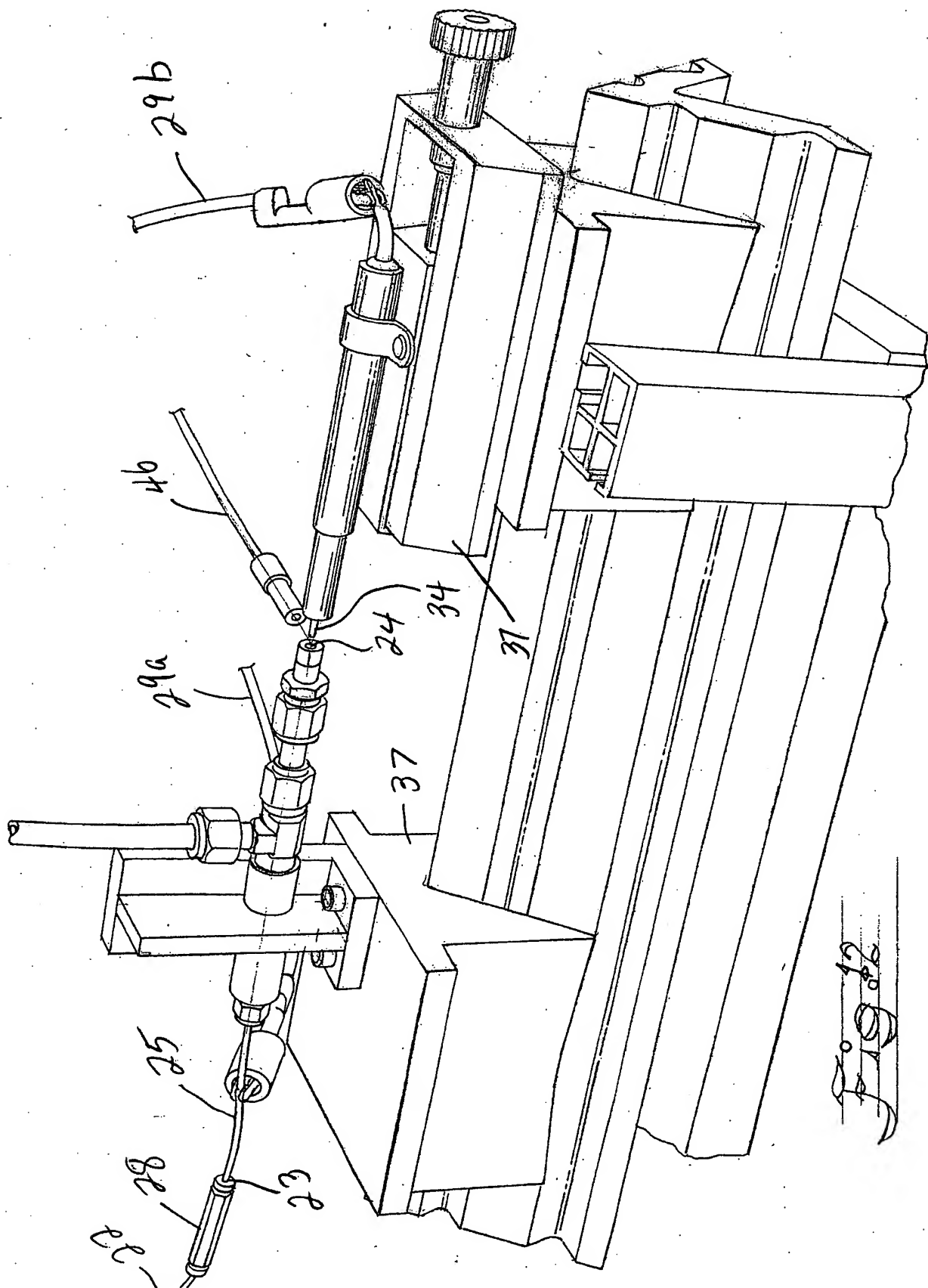


Fig. 12

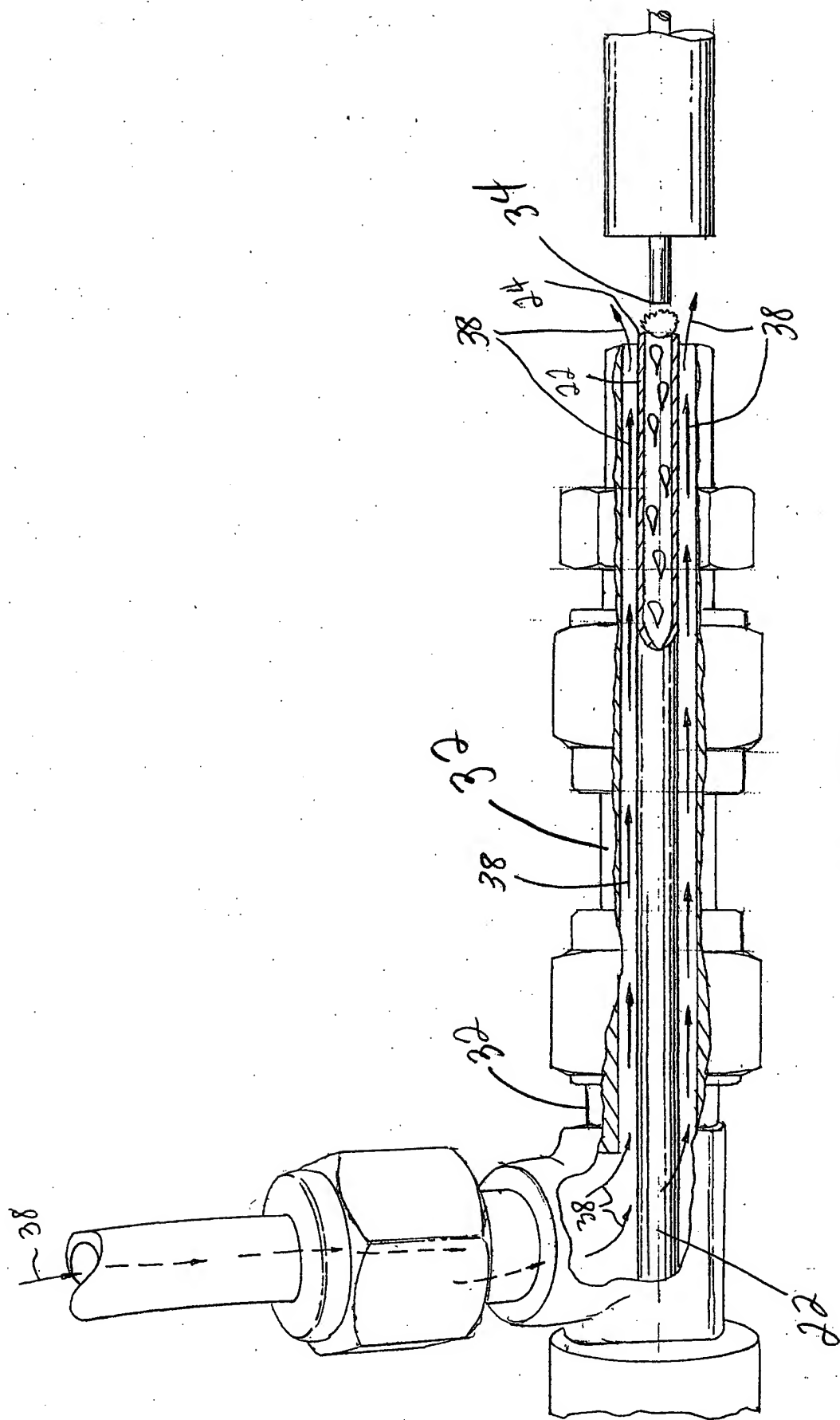
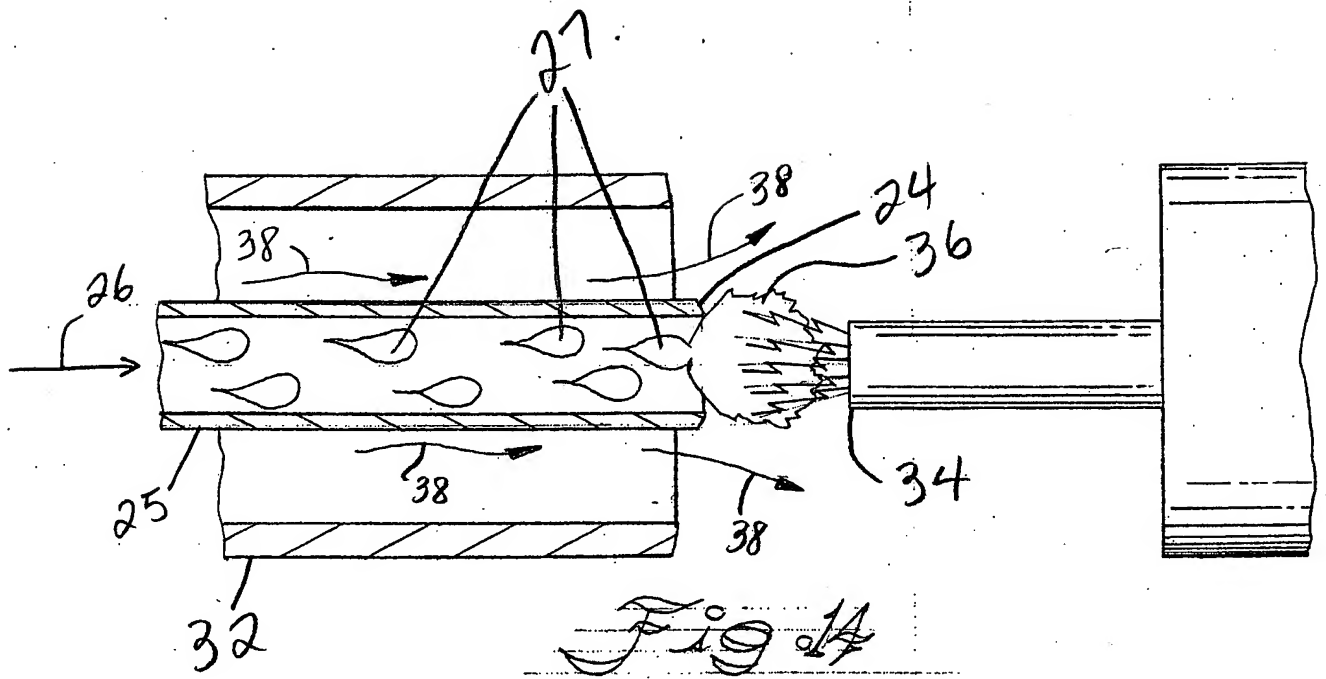


Fig. 13



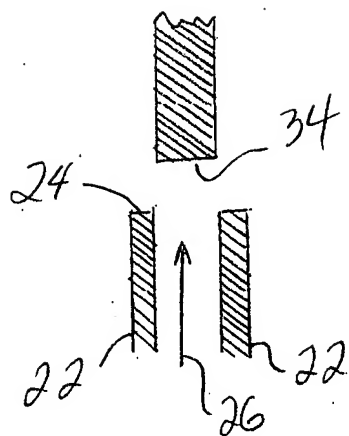


FIG. 15A

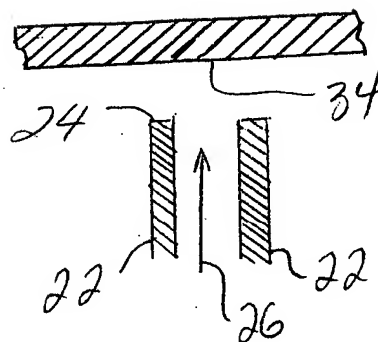


FIG. 15B

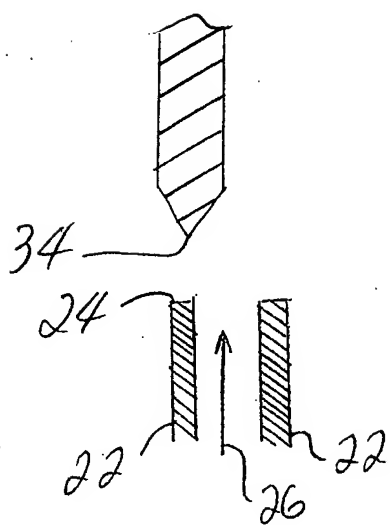


FIG. 15C

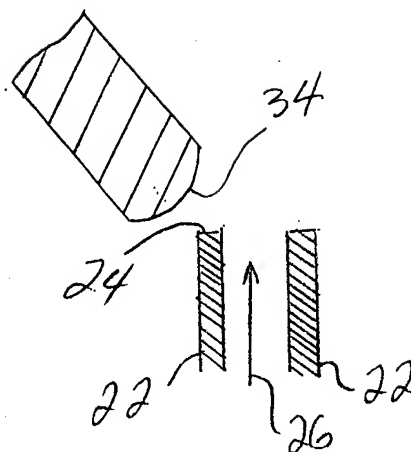


FIG. 15D

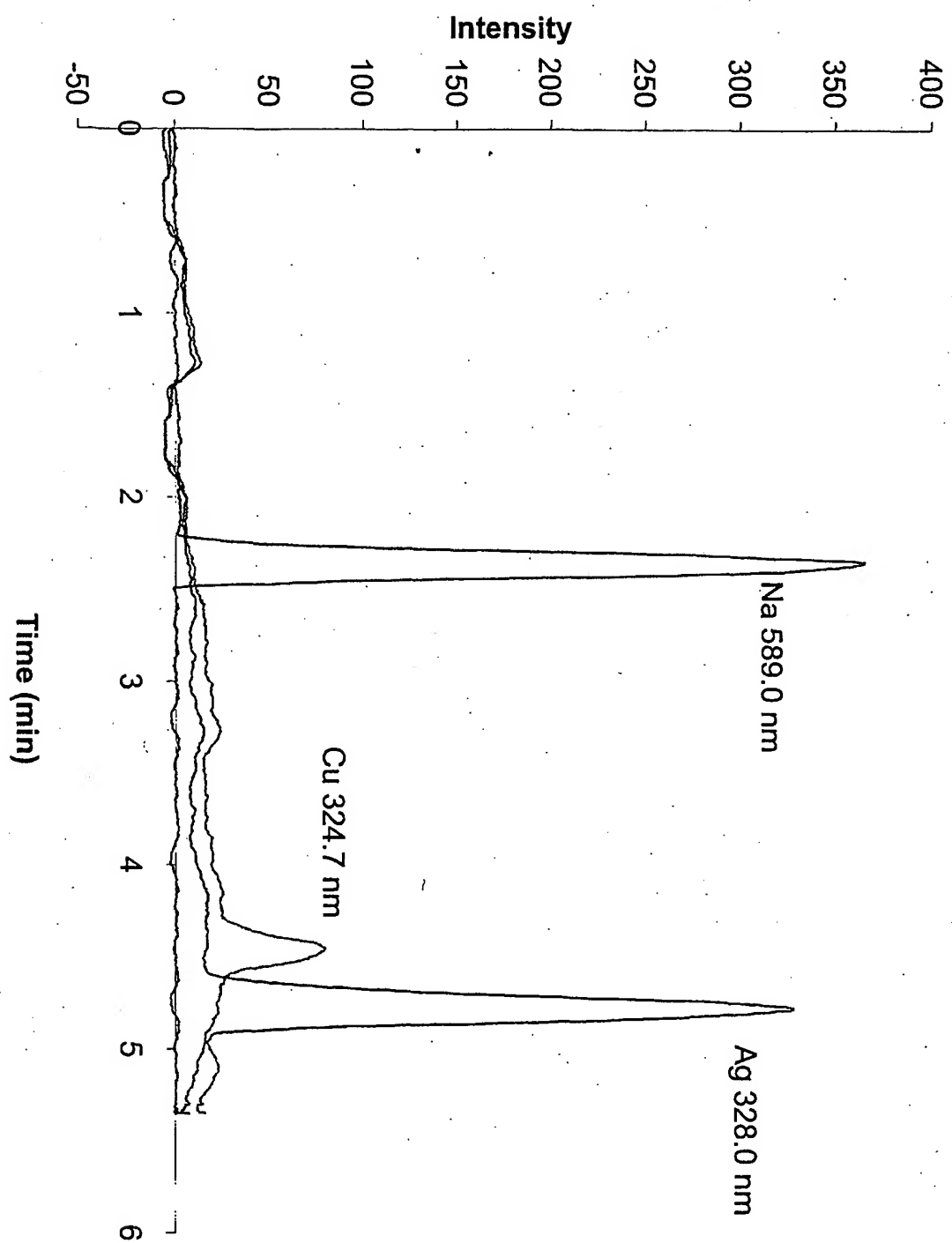


FIG 16